Claims

What is claimed is:

1. A method for providing location-specific responses in an automated voice response system, said method comprising the steps of:
receiving a microphone signal from each of a plurality of microphones;
identifying a spoken command utilizing voice recognition responsive to each said received microphone signal;
identifying a sound location vector responsive to each said identified spoken command; and
providing a response command based upon said sound location vector.

2. A method for providing location-specific responses in an automated voice response system as recited in claim 1 wherein the step of receiving a microphone signal from each of a plurality of microphones includes the steps of digitizing said microphone signal from each of a plurality of microphones; and adding a clock signal to each said digitized microphone signal.

3. A method for providing location-specific responses in an automated voice response system as recited in claim 2 wherein the step of digitizing said microphone signal from each of a plurality of microphones includes the step of applying an analog audio signal from each of a plurality of microphones to a respective analog-to-digital converter (ADC) coupled to each of said plurality of microphones.

4. A method for providing location-specific responses in an automated voice response system as recited in claim 3 wherein the step of adding a clock signal to each said digitized microphone signal includes the step of applying a digitized audio signal from said respective analog-to-digital converter (ADC) to a clock adder for adding said clock signal.

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5. A method for providing location-specific responses in an automated voice response system as recited in claim 1 wherein the step of identifying said spoken command utilizing said voice recognition responsive to said received microphone signal includes the steps of identifying a predefined first command word of predetermined spoken commands.

6. A method for providing location-specific responses in an automated voice response system as recited in claim 1 wherein the step of identifying said spoken command utilizing said voice recognition unit responsive to said received microphone signal includes the steps of identifying said received microphone signal for a predetermined person and identifying said spoken commands only from said identified predetermined person.

7. A method for providing location-specific responses in an automated voice response system as recited in claim 1 wherein the step of identifying said spoken command utilizing said voice recognition responsive to said received microphone signal includes the steps of storing a command start time T_o, a command length T_c for said identified spoken command and a channel number corresponding to one of said plurality of microphones utilizing said voice recognition.

8. A method for providing location-specific responses in an automated voice response system as recited in claim 7 wherein the step of identifying said sound location vector responsive to said identified spoken command includes the steps of performing digital signal analysis of said identified spoken command utilizing said command start time T_o, said command length T_c for said identified spoken command and said channel number.

9. A method for providing location-specific responses in an automated voice response system as recited in claim 8 wherein the step of identifying said sound location vector responsive to said identified spoken command includes the steps of performing digital signal analysis of each said identified spoken command for each said stored channel number.

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1   10.   A method for providing location-specific responses in an
2   automated voice response system as recited in claim 1 wherein the step of
3   providing said response command based upon said sound location vector
4   includes the step of determining an intent of said identified spoken command
5   utilizing said sound location vector.

1   11.   A computer program product for providing location-specific
2   responses in an automated voice response system including a processor,
3   said computer program product including a plurality of computer executable
4   instructions stored on a computer readable medium, wherein said
5   instructions, when executed by a processor, cause the processor to perform
6   the steps of:
7   receiving a digitized audio signal from each of a plurality of
8   microphones;
9   utilizing voice recognition to identify a spoken command responsive to
10   said received digitized microphone audio signal from each of a plurality of
11   microphones;
12   identifying a sound location vector responsive to each identified
13   spoken command; and
14   providing a response command based upon said sound location
15   vector.

1   12.   A computer program product for providing location-specific
2   responses in an automated voice response system as recited in claim 11
3   wherein said instructions, when executed by said processor, further cause
4   the processor to perform the steps of storing a command start time T_0, a
5   command length T_c for said identified spoken command and a channel
6   number corresponding to an identified one of said plurality of microphones
7   for each identified spoken command utilizing said voice recognition.

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13.   A computer program product for providing location-specific responses in an automated voice response system as recited in claim 12 wherein said instructions, when executed by said processor, further cause the processor to perform the steps of performing digital signal analysis for each identified spoken command utilizing said stored command start time T_0, command length T_c for said identified spoken command and said channel number of each identified one said plurality of microphones for each identified spoken command for identifying said sound location vector.

14.   A computer program product for providing location-specific responses in an automated voice response system as recited in claim 12 wherein said instructions, when executed by said processor, cause the processor to perform the steps of selecting one of a plurality of predefined response commands utilizing said sound location vector to provide said response command based upon said sound location vector.

15.   Apparatus for providing location-specific responses in an automated voice response system comprising:
    a plurality of microphones located within a defined environment for receiving a sound within said environment and each of said plurality of microphones providing a microphone signal;
    a processor for identifying spoken commands responsive to each said microphone signal and for identifying a locational origin of said spoken command within said environment; and
    said processor for providing a response command based upon said identified locational origin of said spoken command within said environment.

16.   Apparatus for providing location-specific responses in an automated voice response system as recited in claim 15 includes a respective analog-to-digital converter coupled to each of said plurality of microphones, each respective analog-to-digital converter receiving an analog audio signal and providing a digitized audio signal.

17.   Apparatus for providing location-specific responses in an automated voice response system as recited in claim 16 includes a clock adder coupled to each said respective analog-to-digital converter for adding a clock signal to each said digitized audio signal.

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1   18.   Apparatus for providing location-specific responses in an
2 automated voice response system as recited in claim 17 includes a
3 respective voice recognition unit receiving each said digitized audio signal
4 with said added clock signal; said voice recognition unit identifying said
5 spoken commands; said processor retrieving said identified spoken
6 commands from said respective voice recognition unit.

1   19.   Apparatus for providing location-specific responses in an
2 automated voice response system as recited in claim 18 includes a digital
3 analysis unit utilizing said identified spoken commands from said respective
4 voice recognition unit and identifying said locational origin of said spoken
5 command within said environment; digital analysis unit applying said
6 identified locational origin of said spoken command to said processor.

1   20.   Apparatus for providing location-specific responses in an
2 automated voice response system as recited in claim 19 wherein said
3 processor selecting one of a plurality of predefined response commands
4 utilizing said spoken command locational origin to provide said response
5 command.

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